

ABSTRACT OF THE DISCLOSURE

The present invention comprises an implantable device that provides artificial tissues for repair, augmentation and reconstructive surgery which have mechanical properties comparable to the natural tissues that they supplement or replace. Such devices can be produced by a tissue engineering method comprising seeding a polymer matrix with a first cell type and a second cell type and culturing the seeded matrix under conditions suitable for cell growth or maintenance, whereby a tissue comprising a mixed cell population containing both the first and second cell types is produced. The tissue produced by this method contains a mixed population in which the two cell types are intimately associated without apparent stratification and has mechanical properties which are intermediate between similarly produced tissues containing either one of the two cell types. This invention is particularly useful in forming implantable structural members.